

Section 404 / NEPA Interagency Merger Process Concurrence Meeting

**Least Environmentally Damaging Practicable Alternative
(LEDPA) / Preferred Alternative Selection**

&

Avoidance and Minimization

R-2577 U.S. 158 (Reidsville Road) Improvements
From Multi-lanes North of U.S. 421/I-40 Business in Winston-Salem to
U.S. 220 in Stokesdale

Forsyth and Guilford Counties

STIP Project R-2577
WBS No. 37405.1.1

North Carolina Department of Transportation



Merger Concurrence Point 3 and 4A

May 16, 2018

Meeting Agenda

R-2577 U.S. 158 (Reidsville Road) Improvements

Merger Concurrence Point 3 and 4A

May 16, 2018

1. Meeting Purpose
2. Project Description
3. Purpose of and Need for the Project
4. Project History and Status
5. Project Cost
6. CP 3: Least Environmentally Damaging Practicable Alternative
7. CP 4A: Avoidance and Minimization

Meeting Purpose

The purpose of the meeting is to present relevant information to the R-2577ABC project merger team in order to reach concurrence on Concurrence Point (CP) 3, “Least Environmentally Damaging Practicable Alternative (LEDPA)/ Preferred Alternative,” and CP 4A “Avoidance and Minimization,” for the proposed improvements to U.S. 158 within the proposed limits of this project.

Project Description

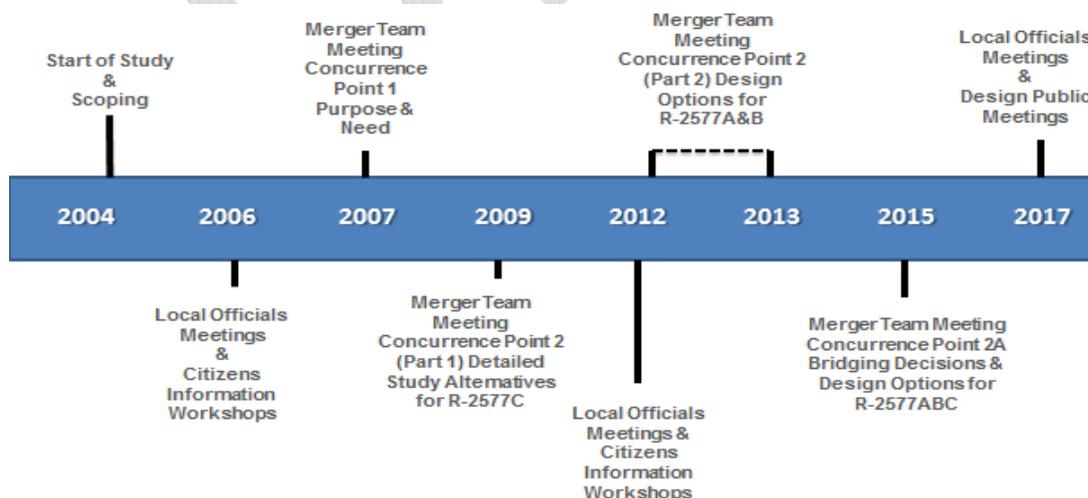
The North Carolina Department of Transportation (NCDOT) proposes to widen approximately 18.8 miles of U.S. 158 (Reidsville Road) to a multi-lane facility, from the existing multi-lane section north of U.S. 421/I-40 Business in Winston-Salem, Forsyth County, to U.S. 220 in Stokesdale, Guilford County. The proposed project is included in the 2018-2027 State Transportation Improvement Program (STIP) as project number R-2577. The project is divided into three sections for funding and construction purposes, sections A, B, and C. R-2577A begins at the multi-lanes north of U.S. 421/I-40 Business in Forsyth County and ends at SR 1965 (Belews Creek Road), north of Vance Road in Forsyth County. R-2577B begins at SR 1965 (Belews Creek Road) in Forsyth County and ends just north of SR 2034 (Anthony Road) in Guilford County. R-2577C begins just north of SR 2034 (Anthony Road) in Guilford County and ends at U.S. 220 in Guilford County.

U.S. 158 is currently a mostly two-lane, undivided facility with no control-of-access within the majority of the project study area. U.S. 158 is designated as a Rural Principal Arterial and provides a link between I-40 in Winston-Salem and U.S. 220 north of Greensboro. The proposed project would upgrade U.S. 158 to a four-lane, median-divided facility with a combination of no control-of-access and partial control-of-access. See Attachment A for a map of the project vicinity and study area boundary.

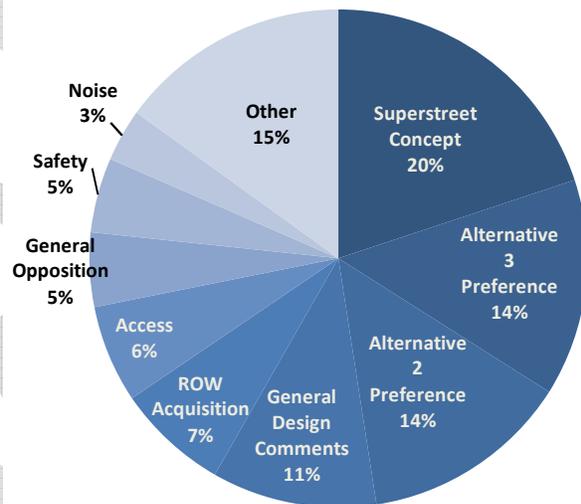
Purpose of and Need for the Project

The purpose of the project is to improve the traffic carrying capacity and level-of-service (LOS) along U.S. 158, within the project limits. The project need stems from existing transportation deficiencies along this section of U.S. 158 that will cause additional travel delays, increase the potential for accidents, and contribute to the inefficient operation of motor vehicles.

Project History & Status



- CP 1 meeting was held on August 14, 2007, and concurrence was reached.
- CP2 meeting for R-2577C was held on February 17, 2009, and concurrence was reached.
- CP2 meetings for R-2577A&B were held on December 12, 2012 and on August 22, 2013, and concurrence was reached.
- CP 2A meeting for R-2577A, B & C was held on September 29, 2015, and concurrence was reached.
- Public Involvement Dates:
 - Citizens Information Workshops (CIWs) were held in April 2006 – one in Walkertown and one in Stokesdale. Purpose of CIWs was to introduce project to public and get comments.
 - CIWs were held in April 2012 to present preliminary study alternatives under consideration.
 - Design Public Meetings (DPMs) were held in October 2017 to give the public and local officials the opportunity to review maps of the Detailed Study Alternatives (DSAs). Nearly 700 members of the public attended the meetings, and 168 written comments were received. The pie chart gives a summary of the types of comments received during the public comment period. A post-DPM meeting was held on November 30, 2017 to discuss and address comments received from the public. Attachment B contains the post-DPM meeting minutes that provides a summary of the comments received and measures taken by NCDOT to address them.
 - USACE posted a Public Notice on April 5, 2018, to allow the public an opportunity to review the proposed DSAs for 30 days and to provide comments.
 - Combined State EA/FONSI to be completed in August 2018.
 - Project Schedule:
 - R-2577A: Right of Way Acquisition – 2020; Construction 2022
 - R-2577B: Right of Way Acquisition – 2024; Construction 2026
 - R-2577C: Right of Way Acquisition and Construction not funded



Project Cost

The project is State-funded. Updated project cost estimates are show in Table 1.

Table 1: Project Cost and Schedule:

R-2577	Right of Way & Utilities (\$M)	Construction (\$M)	Total Project Cost (\$M)
Part A:	\$11.1*	\$35.5*	46.6*
Segment 3 Southern Widening Option	\$27.2 + \$0.53	\$45.0	\$72.73
Segment 3 Transitional Widening Option	\$27.0 + \$0.53	\$35.4	\$62.93
Part B:	\$7.3*	\$49.4*	\$56.7*
Segment 3 Southern Widening Option	\$24.2 + \$0.72	\$46.2	\$71.12
Segment 3 Transitional Widening Option	\$26.3 + \$0.33	\$40.9	\$67.53
Part C:	\$4.8*	\$25.4*	\$30.2*
Alternative 2 Southern Bypass	\$42.0 + \$0.76	\$49.8	\$92.56
Alternative 3 Northern Bypass	\$61.1 + \$0.73	\$48.4	\$110.23

Note: *Cost is based on 2018-2027 State Transportation Improvement Program (STIP)

CP 3: Least Environmentally Damaging Practicable Alternative (LEDPA)

Two Design Options for segment 3 located in R-2577A & B, and two new location alternatives for R-2577C, are still under consideration (see Table 2). For segment 3 located in R-2577A & B, the merger team agreed at the CP 2A meeting on the Southern widening option since it had almost half the wetland and stream impacts than the Northern widening option. However, the number of relocations associated with the Southern widening option was almost twice as much as the Northern widening option. Therefore, the US EPA representative, new to the team, requested that a transitional widening option be considered as well to minimize the number of relocations while still avoiding and/or minimizing impacts to additional jurisdictional resources.

Table 2: Design Options in R-2577A and R-2577B and Final DSAs to Carry Forward for R-2577C

Project Section	Project Segment	Segment Termini	Design Options for Further Study/ Detailed Study Alternatives (DSAs)
A&B	3	NC 66 to Flat Rock Rd.	Southern widening Transitional widening
C	n/a	Anthony Rd. to U.S. 220	Alternative 2 (South of Stokesdale) Alternative 3 (North of Stokesdale)

The Design Public Meeting Maps showing the DSAs can be viewed at the following locations:

R-2577A and B (containing segment 3 Southern Widening and Transitional Widening Options):
<https://www.ncdot.gov/projects/US158ReidsvilleRoad/download/old-hollow-brinkley-map.pdf>

R-2577C Alternative 2 (Southern Bypass of Stokesdale):
<https://www.ncdot.gov/projects/US158ReidsvilleRoad/download/us158-nc68-map.pdf>
<https://www.ncdot.gov/projects/US158ReidsvilleRoad/download/eversfield-i73-us220-map.pdf>

R-2577C Alternative 3 (Northern Bypass of Stokesdale):
<https://www.ncdot.gov/projects/US158ReidsvilleRoad/download/branson-nc65-nc68-map.pdf>
<https://www.ncdot.gov/projects/US158ReidsvilleRoad/download/athens-i73-us220-map.pdf>

For the new location alternatives around Stokesdale in R-2577C, the merger team concurred that Alternatives 2 and 3 would be carried forward for detailed study. The proposed alignment for Alternative 2 passes around the south side of Stokesdale, and the proposed alignment for Alternative 3 passes around the north side of Stokesdale. Alternative 2 has more wetland and stream impacts than Alternative 3

Table 3 summarizes the impacts for the two widening options for segment 3 in R-2577A & B and for the new location DSAs for R-2577C, Alternatives 2 and 3. The proposed right-of-way limits were utilized to develop anticipated impacts for the two remaining widening options for segment 3 in R-2577A & B and for the two DSAs in R-2577C. Jurisdictional stream, wetland, pond, and stream buffer impacts were calculated based on slopes stakes plus 25 feet of the preliminary design plans.

Table 3: Summary of Impacts for Widening Options and New Location DSAs

R-2577ABC Project Impacts	Segment 3 R-2577A&B Southern Widening	Segment 3 R-2577A&B Transitional Widening	Bypass Alt 2 R-2577C South of Stokesdale	Bypass Alt 3 R-2577C North of Stokesdale
Proposed Interchange	0	0	0	1
Rest (Retirement) Homes	0	0	0	1
Cemeteries	0	0	2	3
Major Utilities	0	0	0	0
Residential Relocations	19	14		
Business Relocations	1	2		
Church/Non-Profit Relocations	1	0		
Floodplain Areas	-	-	1 - Kings Creek	-
100-year Floodplain & Floodway (Ac)*	0.0	0.0	0.3	0.0
Streams (No. of Crossings / LF)*	3 / 460	4 / 636 535	13 / 3334.5 3325.5	12 / 2842 2821
Wetlands (Ac)*	0.0	0.0	1.5	0.6
Ponds / Lake (Ac)*	0.2	0.5	0.6	0.0
Stream Buffers (Yes/No)	No	No	Yes - Jordan Lake	Yes - Jordan Lake
Zone 1 Stream Buffers*	0	0	1.9	4.1
Zone 2 Stream Buffers*	0	0	1.4	3.0
River Basins	Yadkin / Roanoke	Yadkin / Roanoke	Roanoke / Cape Fear	Roanoke / Cape Fear
VAD (No. of Impacts/Ac)**	1 / 1.5	1 / 0.9	0 / 0.0	0 / 0.0
UST Sites***	0	0	1	4
Inactive Hazardous Sites***	0	0	1	1
Forested Area (Ac)*	9.3	12.7	75.0	65.3
Federally Listed Species	NLEB & SAB	NLEB & SAB	NLEB & SWP	NLEB & SWP
Right of Way + Utility Cost (\$ Millions)	51.4 + 1.25	53.3 + 0.86	42.0 + \$0.76	61.1 + 0.73
Construction Cost (\$ Millions)	91.1	76.3	49.8	48.4
Total Cost (\$ Millions)	143.85	130.46	92.56	110.23
Note:				
* Impacts calculated using slopestakes + 25 feet; ** Impacts calculated using ROW+Easement width				
*** Information from NCDWR website				
VAD – Voluntary Agricultural District; NLEB – Northern long-eared bat				
SAB – Small-anthered bittercress; SWP – Small-whorled pogonia				
Numbers and costs highlighted in YELLOW is preliminary and is being updated				

CP 4A: Avoidance and Minimization

Bridge Lengths -The merger team concurred on the proposed structures for major stream crossings at the CP 2A meeting; however, bridge lengths were not specified. There are three locations in R-2577A & B where bridges will be constructed. Table 4 shows the proposed structure as concurred to at CP 2A, the

Minimum Hydraulic Recommended Structure, and the length of the proposed bridges as reflected in the preliminary design plans.

Table 4: Proposed bridge lengths for major stream crossings

Location	Existing Structure	Proposed Structure Concurred to at CP 2A	Proposed Structure Length
Lowery Mill Creek Sta. 140+50	3-Barrel, 7'X10' bottomless culvert	Dual bridges	Total bridge length = 200' to allow for the restoration of natural stream channel
Belews Creek Sta. 494+00	6-Barrel, 9'x7' culvert	Dual bridges	Total bridge length = 275' to allow for restoration of natural stream channel
Belews Lake Sta. 607+00	Bridge 164 - 3 span bridge: 1@31', 1@32'-6", 1@31' Total bridge length = 94'-6"	Retain & widen Bridge 164 or build New adjacent bridge	Coordination with Duke Energy for conveyance permit has led to NCDOT recommending existing bridge to be replaced with dual bridges at equal or greater length. New bridges will be 4' higher than existing bridge. Total bridge length = 100'

Utility Impacts – the potential relocation of existing utilities along the proposed project due to the widening of U.S. 158 (R-2577A&B) has been reviewed and assessed. Proposed Utility Easements (PUEs) for the relocation of utilities have been incorporated into the preliminary design plans. Some PUEs are located in the vicinity of jurisdictional streams, but they are for the relocation of overhead utility lines where relocated poles/lines can be placed to span the streams. Some clearing of the vegetative buffer will be required to relocate the overhead utility lines.

The City of Winston-Salem has constructed a pipe bridge on the south side of the existing bridge over Belews Lake (Sta. 607+00 Rt.) for a 12' water main that will need to be relocated when the new bridges over the lake are constructed. Additional coordination with the City of Winston-Salem for the relocation of the water main will be done during the final design phase of the project.

Additional Avoidance and Minimization Measures to Jurisdictional Resources – The following additional measures to avoid and minimize impacts to jurisdictional and non-jurisdictional resources have been incorporated into the preliminary design plans:

1. Bridge 164 over Belews Lake will be replaced with dual bridges (100') and the vertical alignment has been adjusted at Belews Lake crossing (raised 4').
2. Existing culverts at the following locations will be replaced with dual bridges:
 - Lowery Mill Creek – proposed bridge length of 200' is 125' longer than minimum hydraulic recommended structure.
 - Belews Creek – proposed bridge length of 275' is 200' longer than minimum hydraulic recommended structure.
3. Stream and wetland impacts were reviewed to determine if additional slope adjustments can be incorporated for further minimization. Pulling in the side slope from the design standard of 6:1 for

arterials, to 2:1 without needing to install guardrail resulted in the additional minimization to streams. The reduction of wetland impacts was minimal (0.05 ac).

- R-2577 A&B – a reduction of 96 LF of overall stream impacts (from 3,026 LF to 2,930 LF)
 - R-2577 A&B segment 3 transitional widening – a reduction of 101 LF of stream impacts (from 636 LF to 535 LF)
 - R-2577C Alternative 2 – a reduction of 9 LF of stream impacts (from 3,335 LF to 3,326 LF)
 - R-2577C Alternative 3 – a reduction of 21 LF of stream impacts (from 2,842 LF to 2,821 LF)
4. Onsite mitigation is possible at two of the major stream crossings where existing culverts will be replaced with dual bridges (Lowery Mill Creek and Belews Creek).

A table detailing individual wetland and stream impacts and changes in impact amounts resulting from minimization measures can be found in Attachment C.

Additional Avoidance and Minimization Measures to Non-Jurisdictional Resources - additional minimization measures for non-jurisdictional resources have been incorporated into the preliminary design plans:

1. Edgewood Baptist Church (eligible for National Register of Historic Places [NRHP]) – minimized impacts to church and residences across the street:
 - shifted alignment slightly to the south
 - reduced median width to 23'
 - tightened side slopes to 2:1
 - proposed retaining wall in front of church parking lot
2. Drive-In Movie Theater (eligible for NRHP) – tightened side slopes to reduce impacts
3. Keystone Development - minor alignment shift to the north to minimize proposed development – no increase in impacts to other resources